



# NB7030

Notch filter & noise blanker option for the AR7030

## *Fitting instructions*

### **Caution:**

Check the version number of your original microprocessor before commencing with the fitting of this option. The version number is shown on the display for several seconds when the set is first turned on.

Original processor version 11A and above:

The option is directly compatible with sets with original processor versions 11A or above and the enhanced processor can be fitted with no change to the set.

Original processor version 10A

If your set is fitted with a version 10A processor at present it will require re calibration when the enhanced processor is fitted. If this is the case you should contact your dealer who will make the necessary arrangements to have this carried out. Do not fit the enhanced processor until this has been done.

N.B. As the enhanced processor is available as a separate item check that it is not already fitted to your set! Enhanced processors show as a B after the version number.

### **NB7030 contents:**

- Qty 1 PCB and mounting bracket
- Qty 2 M3.5x6 Taptite screw
- Qty 1 Locking pin header 7 way
- Qty 1 Right angle locking pin header 5 way
- Qty 1 Locking pin header 2 way
- Qty 1 Updated microprocessor type AT89C55
- Qty 1 Additional EEPROM type 24C64 for increased memory capacity.
- Qty 1 Fitting instructions
- Qty 1 Operating instructions

Before starting, place a cloth on the work surface to prevent scratching the receiver.

To gain access for fitting the option both top and bottom covers require removal. The top is held in place by four screws requiring a 2.5mm hex key to undo them. The bottom plate is held by six No.2 Posi-drive screws. The speaker is connected to quick release sockets J 16 and 17. To release these lift the black plastic up around 5mm and the wire can be detached.

## **Begin by fitting the new microprocessor and EEPROM**

Certain precautions are necessary for the handling of integrated circuits as they are easily damaged by electrostatic discharge. The packaging in which the IC's are transported prevents such damage by enclosing them in a bag which has a metallic outer layer providing 'Faraday cage' protection. In addition they are then pushed into a conductive foam.

Minimum precautions for handling the IC's include not touching the pins when they have been removed from the conductive foam and ideally, grounding yourself briefly before undoing the packaging by touching a suitable earth point. A central heating radiator is usually an acceptable ground providing your plumbing is not of the plastic type. Better still, if you have made a suitable ground connection for the antenna, leave this connected and touch a metal part of the chassis. This should be done after you have sat down where you intend to carry out the operation as static electricity is often built up on the body when walking across carpets etc.

The microprocessor is mounted in a socket on the control PCB (the vertical one behind the front panel). Remove the old microprocessor by inserting a suitable tool such as a small, flat bladed screw driver between the IC and the socket and gently levering upwards, alternate between the two ends of the IC so that it comes out of the socket evenly. Do not lever on any of the surrounding components such as the adjacent socket for Q8 etc.

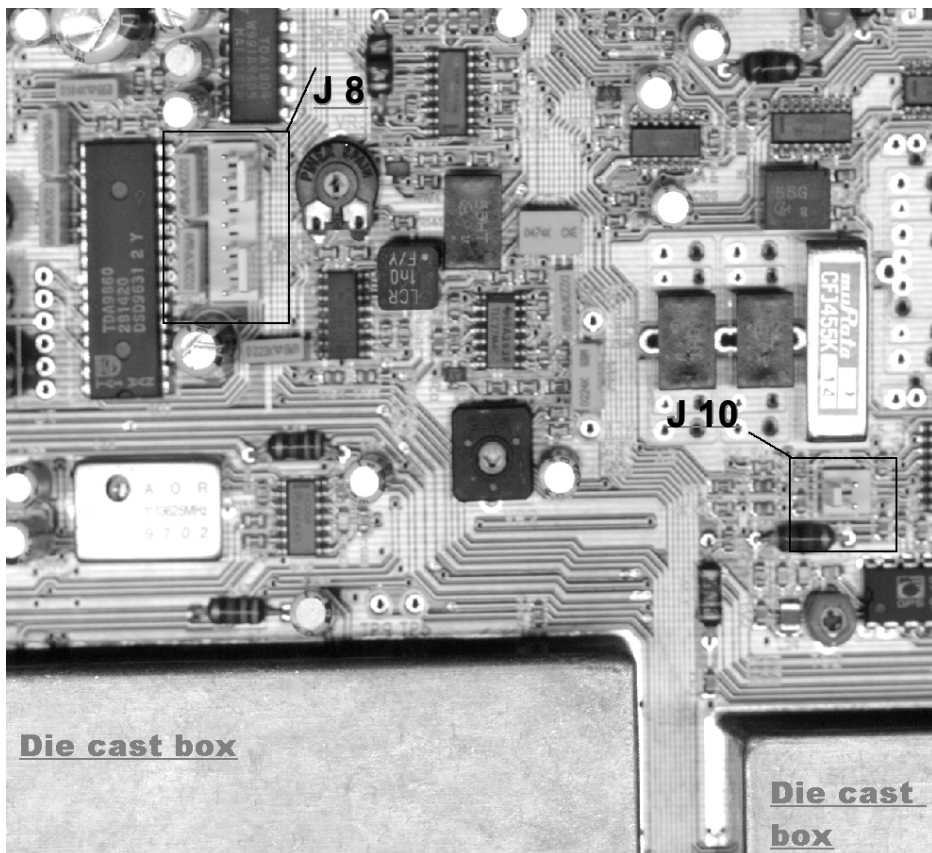
Insert the new IC into the vacated socket observing that the position of pin 1 is marked on the IC with a semi-circle moulded into the appropriate end of the chip and this lines up with the similar identifying mark on the PCB. You will need to push quite hard to fully locate the new IC but be very careful to ensure that all the legs of the chip are properly located in the socket before doing this or they will be folded under the chip when you push.

Now fit the EEPROM into the empty socket next to the CPU following the same precautions as you did with the CPU regarding the position of pin 1 and the careful location of the pins on the IC.

## **Fitting the option PCB and bracket**

Begin by soldering the locking pin headers to the main PCB using the picture as a reference. Fit the 7 way header to position J8 and the two way header to position J10. Note that the plastic locking tab of the header should be fitted so that it is over the thick line of the outline printed on the PCB. Solder the headers on the underside of the PCB being careful not to bridge any of the pins.

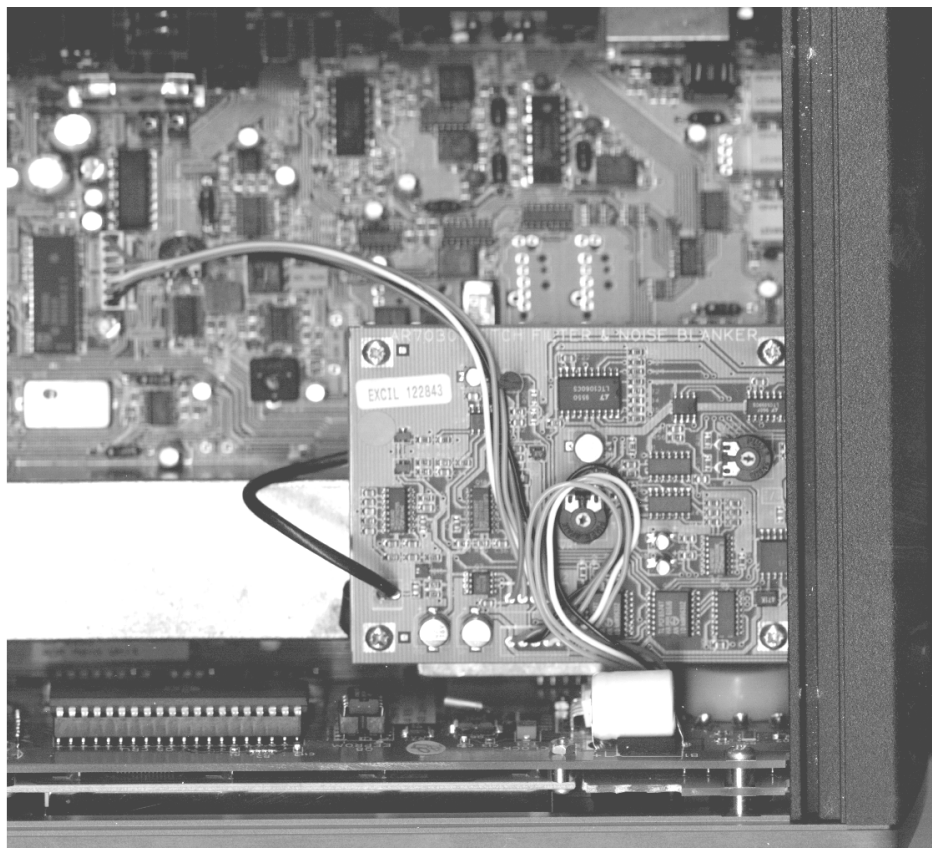
It is difficult to plug the connector into the five way socket on the control unit after it has been fitted so, lay the PCB and bracket in the set, plug the connector into the five way right angle header. Solder the header in to position J4, adjacent to the memory back up battery on the vertical control PCB. This can be soldered from the top of the PCB without any dismantling, however, care is needed to avoid melting the plastic of the connector or causing damage to any of the surrounding parts. Note that the cables should exit towards the side of the set not the middle.



The notch noise blanker option should only be fitted in the position nearest the front panel as shown in the picture. It is possible that you currently have the filter daughter board fitted in this position, if so, this should be moved to the position directly behind, adjacent to the rear panel.

First plug the cables into the appropriate connectors which you have fitted to the main and control PCB. The seven way connector goes to J8 on the main unit, the 2 way to J10, the 5 way connector has already been attached.

The bracket fixes by being screwed to the side rail using the supplied screws which pass through the holes in the bracket and into the continuous slot just below the top face of the side rail. The screws are of the 'Taptite' variety and cut their own thread as they are screwed home. The slot into which they screw is only visible if the set is tilted on its side as it is hidden from view by the top portion of the case side and as you can see allows the screws to be fastened at any point along its length. The picture shows the area the bracket should occupy. Fit the bracket so that the corner of the PCB is almost touching the new EEPROM you have just fitted. Position the cables shown in the picture overleaf.



Either configure and test the option at this point or assemble the receiver then test. When assembling the receiver, fit the top case before the bottom case and make sure the top is pressed fully home (flush to the sides) before putting the screws in. The screw threads are not long enough to pull the top down into the side pieces without damaging the threads. Tighten the screws only finger tight - do not over tighten.

## Configuring the NB7030

Before use, the NB7030 and the features provided by the new features CPU require initialising.

The list of configuration settings is shown below - new items are marked ■ .

Item	Settings		
<b>Select</b>	None ( <b>Modify</b> is informative)		
■ <b>Notch auto tune:</b>	<b>Off</b>	<b>On</b>	
■ <b>Ident preview:</b>	<b>Off</b>	<b>On</b>	
■ <b>Ident auto search:</b>	<b>Off</b>	<b>On</b>	
<b>Aux relay:</b>	<b>Off</b>	<b>Timer</b>	<b>Squelch</b>
<b>Aux output muting:</b>	<b>Off</b>	<b>On</b>	
<b>Aux o/p (L):</b>	0% to 99%		
<b>Aux o/p (R):</b>	0% to 99%		
■ <b>Leap year counter:</b>	0 to 3		
■ <b>Notch option:</b>	<b>No</b>	<b>Yes</b>	
■ <b>NB option:</b>	<b>No</b>	<b>Yes</b>	
■ <b>RF Atten step:</b>	<b>10dB</b>	<b>20dB</b>	
<b>Sync detector:</b>	<b>Auto</b>	<b>Narrow</b>	<b>Wide</b>
<b>RF Gain:</b>	<b>Auto</b>	<b>Man</b>	
■ <b>Memory re-index:</b>	<b>Start</b>		
<b>Filter calibrate:</b>	<b>Start</b>		

### Initialise the option as follows:

1. Press the [O●] button followed by "Cnfg" to access the config menu.
2. Rotate the spin wheel [< >] clockwise until "Notch option" is displayed on the LCD. Press the "No" button [FILTER] to select "Yes" to enable notch filter support.
3. Rotate the spin wheel [< >] further until "NB option" is displayed on the LCD. Press the "No" button [FILTER] to select "Yes" to enable noise blanker support.
4. Rotate the spin wheel [< >] again until "RF Atten step" is displayed on the LCD. Ensure the display shows "20 dB", press the "20 dB"/ "10 dB" button [FILTER] to select "20 dB" is not already displayed. The 10 dB facility is not hardware supported at this time, currently the 20 dB attenuator and 10 dB RF preamplifier work together to provide 10 dB steps.
5. Rotate the spin wheel [< >] again until "Memory re-index:" is displayed on the LCD. Press the "Start" button [FILTER] to ensure an ident (alpha-tag) index is built, this process integrates the data of the original 100 memory channels into the 400 channels provided by the features CPU, if this is not carried out, the idents for the first 100 memory channels will be ignored during auto-ident operation. The indexing process takes just a few seconds.

**Note:** Memory re-index can be used to index the text idents when the radio is upgraded from A to B versions, or when the memories are downloaded from a computer with software that does not directly support the B version of the 7030.

6. Press [MENU] to return to a standard display.

From this point, refer to the additional operating information for details of how to use the NB7030 and the new facilities.